a heat exchange medium substantially filling said tube and said guide vane means, a portion of said heat exchange medium being in the liquid state and saturating said porous means with the remainder being in a vapor state whereby a closed system is provided to transfer heat from said guide vane means to said compressor discharge air to cool said guide vane means.

3. In a gas turbine having compression, combustion, and turbine zones in serial relationship, the combination comprising:

a guide vane ring in said turbine zone exposed to hot combustion gases flowing through said turbine zone, said guide vane ring having a plurality of guide vanes each with an internal chamber,

a tube extending from said chamber to an area subjected to compressor discharge air, said tubes being closed at the end remote from said chamber,

an annular porous structure disposed in said tubes and said chamber abutting the inner walls thereof, said porous structure having pores of progressively increasing diameter from said chamber end to said remote end, and

a heat exchange medium substantially filling said tubes and said chambers, a portion of said heat exchange medium being in the liquid state and saturating said

porous structure with the remainder being in a vapor state whereby a closed system is provided to transfer heat from said guide vanes to said compressor discharge air to cool said guide vane ring.

4. The combination as defined in claim 3 wherein the tubes and the vanes are substantially equal in cross-sectional area and wherein the annular porous structure is of substantially constant cross-sectional area.

5. The combination as defined in claim 3 wherein the tubes and chambers are sealed and evacuated whereby the heat transfer medium is at a subatmospheric pressure.

6. The combination as defined in claim 4 wherein the tubes and chambers are sealed and evacuated whereby the heat transfer medium is at a subatmopsheric pressure.

7. The combination as defined in claim 6 wherein the heat exchange medium is sodium.

References Cited by the Examiner

UNITED STATES PATENTS

2,650,060	8/1953	Stalker	253—39.15
3,015,937	1/1962	Giliberty	60—39.51 X

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